

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



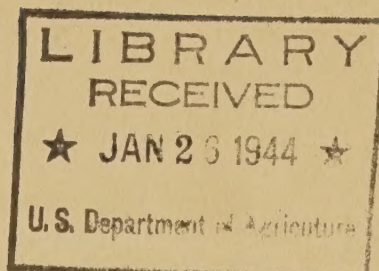
1.9  
EN3Ea

Engineering Adjustments for Southern Farms

*Samuel Patterson, 1892*

By

S. P. Lyle, Senior Agricultural Engineer,  
Bureau of Agricultural Engineering,  
United States Department of Agriculture.



Reserve

(Presented before the Association of Agricultural Workers)  
(Birmingham, Alabama. February 3, 1932)

The low price for cotton prevailing during the year of 1931 presents a problem for every cotton producer in the adjustment of his business to meet the adverse price levels. As reported in The Agricultural Situation for January 1932, the index number for cotton in November 1931 was 59, based on 100 for the five years from August 1909 to July 1914. But this is not the farmer's only disadvantage, for according to preliminary estimates in the same publication and issue the ratio of prices received for farm commodities to the retail prices paid by farmers for commodities used in living and production was 58 as referred to the same five year base. If what the farmer produces will only purchase 58 per cent as much in retail commodities as it formerly did, it is evident he must restrict his purchases in order to remain solvent. It is also evident that credit agencies can not extend credit for crop production purposes beyond the farm income limits. Readjustments in southern farming practice are needed then to insure stability in the business of farming, not only for the benefit of the farm population but also for the security of farm credit. Only a part of the adjustments needed are engineering in nature but these are

2 3 3 3 3 3 3 3  
3 3 3 3 3 3 3 3  
3 3 3 3 3 3 3 3  
3 3 3 3 3 3 3 3



vital for successful farming. The Conference of Extension Workers of the Southern States at Biloxi, Miss., September 8 to 10, 1931, reported relative to the farming situation:

"The permanent solution of the problem must be based largely upon the following general principles":

- "1. The production on the farm of an adequate supply of food and feed by every farm every year.
- "2. A substitution of other crops and farm enterprises to utilize land taken out of cotton and other so-called cash-crop production to employ labor and equipment throughout the year rather than through the growing and harvesting season only.
- "3. A system of cropping that will conserve land and fertility, which will automatically reduce cost of production and increase net returns to the grower.
- "4. Adjustment of quantity and kind of American cotton to world demands."

The same conference reported relative to the home situation:

"In the present economic situation the division" (on home demonstration work)" will lay emphasis on the following things affecting the family's standard of living:

- "1. Production on the farm of meat, poultry, eggs, dairy products, vegetables, fruit, and cereals necessary for the adequate nutrition of the farm family.
- "2. Conservation of food for winter use.
- "3. Adding to the family income through farm women's marketing of surplus garden, orchard, poultry, and dairy products.
- "4. Thrift in clothing through renovation, care, wise buying, and the use of cotton materials.



- "5. (a) Arrangement of work and equipment to save time and steps  
(b) Lowering the cost of operations.  
(c) Budgeting the family income.
- "6. Keeping up the family morale through the maintenance of -  
(a) The comfort and beauty of the home.  
(b) A courageous and optimistic outlook.  
(c) Wholesome family relationships.  
(d) Community work and recreation.
- "7. Protection of the welfare of the child in this period of economic depression, by laying emphasis on his care and development."

This report stated no new point of view, because the long-time program of the extension service was correct for the present situation. It was necessary only to reiterate and emphasize the appropriate recommendations.

Since improvement in the farm business and farm living situation is the most important extension problem, especially at this time, as the farmers prepare for another year of cropping operations, agricultural engineers should endeavor to aid the farmers in the adoption of those recommended practices which relate to the engineering improvements needed. They may be listed parallel to the general recommendations of the Biloxi conference as follows:

Engineering adjustments relating to the Farm Situation.

- 1. Use two horses per worker and two-horse equipment, in order that the labor used may produce feed and food with no more man labor than was formerly used in the production of the cash crop and part of the feed.
- 2. Use two horses per worker in a farm program which will utilize the resident farm labor supply efficiently on an acreage, time and living income basis. For example, labor expended on food and feed crops for



farm and home consumption is now worth approximately one and two-thirds as much, according to the 58 per cent ratio, as the same labor expended on a cash crop to purchase the same quantity of food and feed. If in addition to this saving, man labor is saved by adoption of the two-horse system, the displaced one-mule driver becomes available for needed hand work with crops, livestock, farm improvement work, crop processing for home and market, and other phases of the new program.

3. Build broad base terraces which permit the use of two-horse machinery as the first step in soil and fertility conservation. Grow legumes in field or intertilled rotations. These not only furnish fertilizer at a high rate of return for labor expended as compared with labor on cash crops, but also furnish humus, and used in rotations with cash crops will greatly increase the cash and feed crop yields. Such crops also furnish off-peak loads for labor.
4. Plant less cotton acreage and more food, feed, and legume acreage in a way to distribute the labor load more uniformly through the year. The food, feed, and fertilizer crop program supplies the farm production needs, leaving the cash crop in large measure as the farm net income, free of incumbrance.

#### Engineering adjustments relating to the Home Situation

1. Use two horses per worker to release labor for the production of livestock, poultry and dairy products, vegetables, fruit and cereals.
- 2, 3, & 4. Provide time for food preservation and other home activities, by labor-saving practices in field work. The women can produce more farm home living necessities and luxuries in the home than their labor income in the field will buy. Processing farm products for the market also increases the cash income and tends to spread the income more uniformly throughout the year.
- 5, 6, & 7. Use off-season labor for home improvement jobs about the house and for building and maintenance jobs about the farm. Available time for such work is usually wasted for lack of a definite plan.

This engineering application of the general recommendations may be summarized briefly under five heads, as follows:



1. Correlate the engineering work with the other extension recommendations.
2. Promote the two-horse farm plan because it is the most direct step toward a labor efficiency program which can be taken on the majority of southern farms.  
21 per cent of the farmers operating approximately 31 per cent of the crop acreage in the cotton States have crop acreages averaging between twenty-five and fifty acres. Fifty six per cent of the farmers operating approximately 29 per cent of the crop acreage in the cotton States have crop acreages below twenty five acres. Thus 77 per cent of the farmers and 60 per cent of the crop acreages of the principal cotton producing states are within the limits of this problem.
3. Promote land improvement practices relating especially to these small farm programs. Extension agents have reported nearly ten millions of acres terraced on nearly 200,000 farms since 1923. More and better terracing should result from development of the two-horse balanced farm plan.
4. Promote the utilization of off-season labor available for home and farm improvement on building construction, alteration, installation, repair and decoration jobs.
5. Organize work through the county agent in community conference groups which enable each farmer to work out his own plan in conformity with his ability to put the general recommendations into practice.

At such conferences the farmers could make both group and individual decisions on the following and other features of farm operation plans:

1. Mules, cows, poultry, and hogs needed.
2. Feed required for livestock.
3. Food, fresh and preserved, for the family.
4. Crop acreages in cotton (or other cash crops), corn, winter cover crops, hay, potatoes, cane, garden, fruit.
5. Man and horse labor, and implement requirements for these crops.
6. Buildings, fences, and other improvements.



On many farms a two-horse cultivator would be the only new implement required, but provision must be made for teaching the skill required for its successful operation.

The accompanying chart indicates on the two upper graphs the relative importance of the power problems in the one, two, three to four-horse, and larger team or tractor units in Texas, Oklahoma, Arkansas, Louisiana, Mississippi, Alabama, Georgia, South Carolina and North Carolina. The bottom graph on the chart indicates that farms in the range between 25 and 40 crop acres generally have enough farm acreage available to expand the crop acreage to 45 or 50 acres, which on a balanced farm program would be suitable for two-horse classification. Many owner operators in this classification can make the adjustments recommended readily. It would seem advisable to extend aid to this group first, since through them the influence should spread most rapidly and results should be more permanent.

The cropper class of one-horse farmer presents a different and more variable problem. Improvement in his status will result only from the landlord's necessity. Under the cropper system, labor costs the same to the landlord regardless of whether one-horse or two-horse equipment is used and there may also be a commissary and financing profit proportional to the number of families kept on the land. This system is satisfactory to both landlord and cropper as long as the price of cotton will pay for all the production, living, and financing costs, but when the price of cotton recedes to a point which will not cover these costs the cropper is in want and the financing agency may be bankrupt.



Relief is needed for this group and these choices seem available to landlords:

1. A live-at-home program for croppers on the one-horse plan by reducing cotton acreage.
2. Cropper production on the two-horse plan. This would also reduce cotton acreage. If all the labor is to be retained as many landlords desire to do to protect their tenants from unemployment, the labor saved by two-horse methods can be used profitably as hand labor in the more diversified and intensive balanced farm program recommended.
3. A reduction of cropper acreage with an increase in owner-operated acreage, in which plan croppers would produce the cotton or cash crop and the owner would hire them part time for the general farm operations of the live-at-home program. The food and feed advanced by the owner would apply on the wages. Under this system two-horse equipment should be profitable for cropper acreage and two-horse and larger teams or tractors would be suitable for the owner's farm. Cropper acreage may be included in the general farm rotation.
4. The fourth choice is a complete change from cropper operation to owner operation. In this case, on large farms the live-at-home program will have only minor significance, but the general extension recommendations are applicable.

